

## REMARKS

The only issues outstanding in the Office Action mailed October 2, 2002, are the rejections over art of all claims. Reconsideration of these rejections, in view of the following discussion, is respectfully requested.

### Rejection Under 35 U.S.C. §102

Claims 1-14 have been rejected under 35 U.S.C. §102(b) over Meissner '638. Reconsideration of this rejection is respectfully requested.

It is respectfully submitted that Meissner does not disclose materials having a "low temperature bonding area," nor materials which are joined by means of a low temperature bonding method. "Low temperature" bonding techniques are disclosed, for example, in USP 6,129,854, and in USP 6,284,085, which are provided in the Information Disclosure Statement filed on even date. It is evident, from these references, that "low temperature" techniques have an understood meaning in the art. By contrast, Meissner utilizes a conventional bonding with molecular diffusion between the two surfaces to be bonded. This becomes clear, e.g., by the description col. 7, lines 28-43, where Meissner mentions that a rearrangement of hydrogen bonds by such diffusion is believed to be the mechanism which tightens the bond.

Furthermore, it is clear to those skilled in the art that diffusion bonding necessitates increased bonding temperature and that the bond strength depends on the bonding temperature (see e.g., col. 12, lines 58-63 of Meissner), i.e., patentees' technique is a generally conventional thermal bonding.

Thus, Meissner's achievement is to have reduced somewhat the bonding temperature of the thermal diffusion bonding, e.g., to 80° to 100°C as described in col. 12, lines 49-53.

However, with diffusion bonding, reducing the temperature merely provides a compromise between the strength of the bond and the thermal load, e.g., for organic crystals or plastics. Namely, this compromise with reduced temperature achieves a significantly reduced bond strength, as admitted by Meissner (see e.g., col. 12, lines 56-61).

Therefore, while the bonding process proposed by Meissner may be done at a temperature of 80° to 100°C, because patentees utilize diffusion bonding their technique is a modified thermal or "high temperature" bonding in the terminology of those skilled in the art.

Thus, Meissner fails to disclose or, for that matter suggest, a low temperature bond.

Indeed, inasmuch as Meissner teaches that lowering the temperature reduces bond strength, as noted above, Meissner would teach away from lowering the temperature of the bonding to values considered in the art to be "low temperature."

Moreover, Meissner does not disclose activating a bonding joint with a bonding solution, for example, as claimed in claims 55-57.

Additionally, it is submitted that Meissner does not disclose a three dimensional waveguide structure, instead describing the connecting of optical fibers into one dimensional structures or lens arrays (see Figs. 8G-H) and stacked multilayers, see col. 21, line 45 to col. 22, line 39. Patentees thus fail to suggest three dimensional waveguide structures. Compare the present claim 51 and Fig. 3.

Accordingly, it is submitted that Meissner does not disclose the presently claimed invention, and withdrawal of this rejection is respectfully requested.

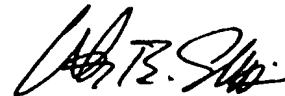
Claims 15-50 have been rejected under 35 U.S.C. §103 over Meissner and official notice. Reconsideration of this rejection is also respectfully requested.

The deficiencies of Meissner have been discussed above. It is submitted that it would not be obvious to produce the invention of the present claims, as explained fully above. Thus, withdrawal of this rejection is also respectfully requested.

The claims of the application are submitted to be in condition for allowance. However, should the Examiner have any questions or comments, he or she is cordially invited to telephone the undersigned at the telephone number indicated below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



---

Harry B. Shubin (Reg. No. 32,004)  
Attorney/Agent for Applicants

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.  
Arlington Courthouse Plaza I  
2200 Clarendon Blvd. Suite 1400  
Arlington, Virginia 22201  
Telephone: (703) 243-6333  
Facsimile: (703) 243-6410

**FILED: April 2, 2003**

K:\BKRAM\I P1\REPLY.doc

**VERSION WITH MARKING TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Please amend claims 1, 4, and 16 as follows:

1. (Amended) A phototonic device comprising:

a first section including a an optical material, ~~adapted to interact with photons~~,

a second section including an optical material, ~~adapted to interact with photons~~,

with an area of said first section and an area of said second section abutting each other,

~~characterized in that~~ wherein

at least a part of said first area and a part of said second area define a low temperature bonding area, and wherein said first section and said second section form a waveguide.

4. (Amended) A photonic device according to claim 1, wherein said ~~interaction with photons comprises one or more interaction types of the group of interactions consisting of~~ optical material is useable for transmission of photons, reflection of photons, absorption of photons, generation of photons, emission of photons, wavelength conversion of photons, guiding of photons, diffraction of photons, refraction of photons, superimposing photons, generation of photon interference and linear, elliptic ~~and~~ or circular polarization of photons.

16. (Amended) A photonic device according to claim 15, wherein splitter comprises a light amplifying material ~~adapted to amplify~~ amplifying light from said light source.